FOREST EXCISE TAX -- ROAD SUMMARY SHEET

Region: PACIFIC CASCADE REGION

Timber Sale Name: FIRST TIME

Agreement Number: 30-075059

Excise Tax Applicable Activities

Construction: 3,965 **linear feet**
Road to be constructed (optional and required) but not abandoned

Reconstruction: 20,663 **linear feet**
Road to be reconstructed (optional and required) but not abandoned

Abandonment: 0 **linear feet**
Abandonment of existing roads not reconstructed under the contract

Deactivation: 0 **linear feet**
Road to be made undriveable but not officially abandoned.

Pre-Haul Maintenance: 0 **linear feet**
Existing road to receive maintenance work (specifically required by the contract) prior to haul

Excise Tax Exempt Activities

Temporary Optional Construction: 0 **linear feet**
Optional roads to be constructed and then abandoned

Temporary Optional Reconstruction: 0 **linear feet**
Optional roads to be reconstructed and then abandoned

New Abandonment: 0 **linear feet**
Abandonment of roads constructed or reconstructed under the contract

All parties must make their own assessment of the taxable or non-taxable status of any work performed under the timber sale contract. The Department of Revenue bears responsibility for determining forest road excise taxes. The Department of Natural Resources developed this form to help estimate the impact of forest excise taxes. However, the information provided may not precisely calculate the actual amount of taxes due. The Department of Revenue is available for consultation by calling 1.800.548.8829.

(Revised 7/04)

STATE OF WASHINGTON
DEPARTMENT OF NATURAL RESOURCES
PACIFIC CASCADE REGION

FIRST TIME

ROAD PLAN

SECTION 4, 5, 10, 14, TOWNSHIP 11 NORTH, RANGE 09 WEST, W.M.
PACIFIC COUNTY

ST. HELENS DISTRICT

AGREEMENT NO.: 30-075059

DATE: 09/01/2003

CONTRACT ADMINISTRATOR: Larry Leach

STAFF ENGINEER: Brett Freeman

DRAWN & COMPILED BY: Alicia Compton

SECTION 0 – SCOPE OF PROJECT

This project includes but is not limited to construction including:

clearing;
grubbing;
right-of-way debris disposal;
excavation and/or embankment to subgrade;
acquisition and installation of drainage structures;
acquisition, manufacture, and application of rock;
grass seeding;
exploration and development of new rock source.

This project also includes but is not limited to reconstruction including:

brushing right-of-way;
clearing existing excavation and embankment slopes;
grubbing existing excavation and embankment slopes;
right-of-way debris disposal;
cleaning ditches;
constructing ditches;
replacement of existing drainage structures;
acquisition and installation of additional drainage structures;
widening road segments;
grading and shaping existing road surface and turnouts;
constructing additional turnouts;
compaction of road surface;
acquisition, manufacture, and application of rock;
grass seeding.

SECTION 1 - GENERAL CLAUSES

1.1-1

Clauses in this plan apply to all construction or reconstruction including landings unless otherwise noted.

1.1-2

Construction or reconstruction of the following roads is required. All roads shall be constructed or reconstructed on the State's location and in accordance with this Road Plan.

Road	Stations	Type
C-Line	0+00 to 78+14	Reconstruction
C-Line Tie Rd	0+00 to 7+16	Construction
H-Line	42+24 to 70+22	Reconstruction
H-1200	0+00 to 25+34	Reconstruction
H-1230	58+08 to 104+93	Reconstruction
	104+93 to 117+74	Construction
A-2060	0+00 to 19+68	Construction

1.1-3

Reconstruction of the following road is not required. Roads used by the Purchaser shall be reconstructed on the State's location and in accordance with this Road Plan.

Road	Stations	Type
H-1210	0+00 to 21+45	Reconstruction
H-Line	70+22 to 73+39	Reconstruction
C-Line	78+14 to 81+84	Reconstruction

1.1-4

If the Purchaser desires a road location or design change, a revised Road Plan shall be submitted to the State for consideration.

1.1-5

On this plan quantities are minimum acceptable values. Additional quantities required by the State because of hidden conditions or Purchaser's choice of construction season or techniques shall be at the Purchaser's expense. Hidden conditions include, but are not limited to: solid subsurface rock, subsurface springs, saturated ground, and unstable soil.

1.2-1

The construction or reconstruction of any roads specified herein shall not be permitted between September 30 and May 1 unless authority to do so is granted, in writing, by the Contract Administrator.

1.2-2

Purchaser shall not use roads constructed or reconstructed under this Road Plan for hauling, other than timber cut on the right-of-way, without written approval from the Contract Administrator.

1.2.1-1

Pioneering shall not extend past construction that will be completed during the current construction season. Drainage shall be provided on all uncompleted construction as approved, in writing, by the Contract Administrator.

Clearing and grubbing shall be completed prior to starting excavation and embankment.

Culvert placement in live streams shall precede embankment where culverts are to be placed along natural ground.

Culverts shall be installed in completed subgrade as construction progresses.

Subgrade, ditches, and culvert installations shall be completed and are subject to written approval by the Contract Administrator prior to rock application.

1.3-1A

Hauling shall be suspended when wheel track rutting exceeds 6 inches unless Purchaser elects to correct the situation at his/her own expense. Corrective measures and continued operations are subject to written approval by the Contract Administrator.

1.4-3

Reference points (R.P.'s) that are moved or damaged at any time during construction shall be reset in their original locations by the Purchaser. Excavation and embankment shall not proceed on road segments controlled by said R.P.'s until all moved or damaged R.P.'s are reset.

1.5-1

Maintenance on roads listed in Contract Clauses C-50 (Purchaser Road Maintenance and Repair) and C-60 (Designated Road Maintainer) shall be performed in accordance with Forest Access Road Maintenance Specifications.

SECTION 2 - CLEARING

2.1-1

Fell all vegetative material larger than 2 inches DBH or over 5 feet high between the marked right-of-way boundaries or if not marked in the field, between clearing limits specified on TYPICAL SECTION SHEET.

SECTION 3 - GRUBBING

3-1

All stumps shall be removed that fall between grubbing limits shown on the TYPICAL SECTION SHEET. Those outside the grubbing limits but with undercut roots shall also be removed.

3-2

Grubbing limits are defined as the entire area between the external limits shown on the TYPICAL SECTION SHEET.

SECTION 4 - DEBRIS DISPOSAL AND REMOVAL

4.1-1

Right-of-way debris is defined as all nonmerchantable vegetative material larger than one cubic foot in volume within the grubbing limits.

4.1-2

All right-of-way debris disposal shall be completed prior to the application of rock.

4.2.3-3

Right-of-way debris shall not be placed against standing timber.

4.2.3-4

Right-of-way debris shall be scattered outside the grubbing limits.

SECTION 5 - EXCAVATION

5.1-1

Roads shall be constructed or reconstructed in accordance with dimensions shown on the TYPICAL SECTION SHEET.

5.1-1B

On the following roads, the existing subgrade shall be widened to the dimensions shown on the TYPICAL SECTION SHEET.

Road	Stations
H-Line	42+24 to 70+22
C-Line	0+00 to 78+14
H-1200	0+00 to 25+34
H-1230	58+08 to 117+74
H-1210	0+00 to 21+45

5.1-3

Road grade and alignment shall conform to the State's marked location. Grade and alignment shall have smooth continuity without abrupt changes in direction. Maximum grades are: 18 percent favorable and 12 percent adverse. Minimum radius curve is 60 feet.

5.1-4

Minimum extra widening on the inside of curves shall be:

5 feet extra	80 to 100 foot radius curve
7 feet extra	60 to 80 foot radius curve

5.1-5

Curve widening, where required, shall be added to the inside of curves.

5.1-7

Roads shall be constructed or reconstructed to the dimensions shown on the TYPICAL SECTION SHEET, within the tolerance listed below. Tolerance classes for each road are listed on the TYPICAL SECTION SHEET.

Tolerance Class	A	B	C
Road Width (feet)	+1.5	+1.5	+2.0
Subgrade elevation (feet +/-)	0.5	1.0	2.0
Centerline alignment (feet lt./rt.)	1.0	1.5	3.0

5.1-8

Excavation slopes shall be constructed no steeper than shown on the following table:

Material Type	Excavation Slope Ratio
Common Earth (on side slopes of 55%)	1:1
Common Earth (55% to 70% sideslopes)	¾:1
Common Earth (on slopes over 70%)	½:1
Fractured or loose rock	½:1
Hardpan or solid rock	¼:1

5.1-8A

On the following roads, Purchaser shall construct ditches and scatter excavated material outside the grubbing limits.

Road	Stations
H-Line	42+24 to 70+22
C-Line	0+00 to 78+14
H-1200	0+00 to 25+34
H-1230	58+08 to 117+74
H-1210	0+00 to 21+45

5.1-8B

On the following roads, Purchaser shall reconstruct excavation slopes to provide sufficient width for ditches and road surface. Excavated slopes shall be consistent with Clause 5.1-8. Excavated material shall be scattered outside the grubbing limits.

Road	Stations
H-1200	0+00 to 25+34
H-1230	58+08 to 117+74
H-1210	0+00 to 21+45

5.1-9

Excavation and embankment slopes shall be constructed to a uniform line and left rough for easier revegetation.

5.1-10

Embankments shall be widened as follows:

Height at Centerline	Subgrade Widening
Less than 6 feet	2 feet
6 feet or over	4 feet

5.1-11

Embankment slopes shall be constructed no steeper than shown on the following table:

Material Type	Embankment Slope Ratio
Common Earth and Rounded Gravel	1½:1
Angular Rock	1¼:1
Sandy Soils	2:1

5.1-12

Organic material shall be excluded from embankment.

5.1-15B

Waste material may be deposited adjacent to the road prism on side slopes up to 45 percent if the waste material is compacted and more than 100 feet away from live streams. On side slopes between 45 and 55 percent, all excavation not needed for embankment shall be end hauled or pushed to designated embankment sites. On side slopes of 55 percent or more, all excavation shall be end hauled or pushed to designated embankment sites. All waste embankments shall be compacted in layers not exceeding 2 feet.

5.1-15C

When constructing landings, waste material and embankment shall not be placed on side slopes steeper than 45%.

5.1-21

Waste material shall not be deposited within 50 feet of a cross drain culvert installation.

5.1-24

Turnouts shall be intervisible with a maximum of 1,000 feet between turnouts. Location shall be subject to written approval of the Contract Administrator.

5.1-25

Turnarounds shall be no larger than 30 feet long and 30 feet wide. Location shall be subject to written approval of the Contract Administrator.

5.2-1

Road pioneering operations shall not undercut the final cut slope, deposit excavated material outside the grubbing limits, or restrict drainage.

5.3-1

All embankment and waste material shall be compacted. The minimum acceptable compaction is achieved by placing embankments in 2 foot or shallower lifts and routing excavation equipment over entire width of the lifts.

5.4-1

Silt-bearing runoff shall not be permitted to go into streams.

5.4-2

Accomplish sediment removal through silt traps, silt fences, settling ponds, or other methods as approved, in writing, by the Contract Administrator.

5.4-3.1

On the following roads, Purchaser shall furnish and evenly spread the seed mixture listed below on all exposed soil inside the grubbing limits at a rate of 40 pounds per acre. The date of application is subject to approval by the Contract Administrator.

Mixture Percent by Weight	Minimum Percent Germination
50% Fescue, Red	90% Germination
25% Ryegrass, Perennial	90% Germination
15% Bentgrass	85% Germination
10% Clover, White and White Dutch (inoculated)	90% Germination

Weed seed shall not exceed 0.5% by weight.

5.4-3.1 continued

Seed shall be furnished in standard containers on which the following shall be shown:

1. Common name of seed
2. Net weight
3. Percent of purity
4. Percentage of germination
5. Percentage of weed seed and inert material

Required seed not spread by the termination of this contract shall become property of the State. The amount owed to the State shall be as follows, less the amount spread.

Road	Stations	Seed Quantity (lbs)
C-Line Tie Rd	0+00 to 7+16	25
H-1200	0+00 to 25+34	45
H-1230	58+08 to 117+74	110
A-2060	0+00 to 19+68	80
H-Line	42+24 to 70+22	50
C-Line	0+00 to 78+14	145

5.5-4

Constructed or reconstructed subgrades shall be compacted full width except ditch prior to rock application. Compaction shall be by a smooth-drum vibratory roller weighing at least 14,000 pounds. Four complete passes shall be made at a maximum operating speed of 3 mph.

5.5-5

Finished subgrade shall be crowned as shown on the TYPICAL SECTION SHEET, and shall be uniform, firm, rut-free, and shaped to ensure surface runoff in an even, unconcentrated manner.

SECTION 6 - DRAINAGE

6.2.1-1B

Purchaser shall furnish, install, and maintain corrugated polyethylene pipe (AASHTO specification No. M-294 Type S) as designated on the CULVERT LIST. Culvert and flume lengths shall be varied to fit as-built conditions subject to written approval by the Contract Administrator.

6.2.1-2

Manufacturer's approved connectors shall be used for corrugated polyethylene pipe.

6.2.1-5

On required roads: culverts, downspouts, flumes, bands, and gaskets as listed on the CULVERT LIST which are not installed shall become property of the State.

6.2.1-5A

Metal, concrete, or plastic culverts and bands removed from the road bed shall be removed from State land prior to termination of this contract.

6.2.2.1-1A

Culvert, downspout, flume, and energy dissipator installation shall be in accordance with CULVERT AND DRAINAGE SPECIFICATION DETAIL and the Corrugated Polyethylene Pipe Association "Recommended Installation Practices for Corrugated Polyethylene Pipe and Fittings."

6.2.2.3-1

Cross drains and surface culverts on road grades in excess of 3% shall be skewed at least 30 degrees from perpendicular to the road centerline, except that cross drain culverts at the low points of dips in roads shall not be skewed.

6.2.2.3-2

Cross drain culverts shall be installed at a slope steeper than the incoming ditch grade, but not less than 3% nor more than 10%.

6.2.2.5-1

Drainage structure outfalls shall not terminate directly on unprotected soil that will erode. Downspouts, flumes, and energy dissipators shall be installed to prevent erosion.

6.2.2.6-1

Downspouts and flumes longer than 10 feet shall be staked on both sides at maximum intervals of 10 feet with 6 foot heavy duty steel posts, and fastened securely to the posts with No. 10 galvanized smooth wire or ½ inch bolts in accordance with CULVERT AND DRAINAGE SPECIFICATIONS DETAIL.

6.3-1

Ditches shall be constructed concurrently with construction of the subgrade. Ditches shall drain to culverts, ditchouts, and natural drainages.

6.3-2B

On all reconstructed roads, the construction and reshaping of ditches, and the cleaning of inlets and outlets of culverts shall be completed prior to the application of rock and shall be done in accordance with the TYPICAL SECTION SHEET and CULVERT AND DRAINAGE SPECIFICATION DETAIL.

6.4-1

Catch basins shall be constructed to resist erosion in accordance with CULVERT AND DRAINAGE SPECIFICATION DETAIL. Minimum dimensions: two feet wide and four feet long with backslopes consistent with Clause 5.1-8: Excavation Slopes.

6.5-1

Headwalls shall be constructed in accordance with CULVERT AND DRAINAGE SPECIFICATION DETAIL at all cross drain culverts.

6.5-2A

On all reconstructed roads, all inlets and outlets of culverts shall be cleaned.

SECTION 7 - ROCK

7.1-1

Rock for construction and/or reconstruction under this contract may be obtained from sources on State land as listed below at no charge to the Purchaser. Development and use shall be in accordance with a written "Development Plan" prepared by the State. A copy of the written plan is available upon request from the Pacific Cascade Region office. Upon completion of operations, the rock source shall be left in the condition specified in said plan, subject to approval by the Contract Administrator. Use of material from any other source must have prior written approval from the Contract Administrator. If other operators are using or desire to use this rock source, a joint operating plan shall be developed. All parties shall follow this plan.

Source	Location
H-1210 Quarry	Sec. 4, T11N, R09W, W.M.

7.1-1C

Rock for construction and/or reconstruction under this contract may be obtained from any commercial source as approved in writing by the Contract Administrator.

7.1-3

All rock source operations shall be conducted as directed by the Contract Administrator and in accordance with an approved development plan on file at the Pacific Cascade Region office.

7.2.1-4

Rock shall meet the following specifications for gradation and quality when placed in hauling vehicles. The exact point of evaluation for conformance to specifications will be determined by the Contract Administrator.

7.2.1.1-6B

3 INCH MINUS CRUSHED ROCK

% passing 3" square sieve	100%
% passing 2" square sieve	65 - 95%
% passing ¾" square sieve	28 - 70%
% passing #4 square sieve	10 - 35%
% passing U.S. #200 sieve	0 - 10%

All percentages are by weight.

7.2.1.1-7
4 INCH MINUS JAW RUN ROCK

% equal to, or smaller in one dimension than the specified size	100%
% passing U.S. #40 sieve	16% Max
% passing U.S. #200 sieve	5% Max

All percentages are by weight.

7.2.1.1-7B
8 INCH PLUS ROCK

% equal to, or larger in one dimension than the specified size	100%
% passing U.S. #40 sieve	16% Max
% passing U.S. #200 sieve	5% Max

All percentages are by weight.

7.2.1.1-9
Landing rock shall be no coarser than 6 INCH MINUS.

7.2.3-3
Measurement of the 3 INCH MINUS CRUSHED and 4 INCH MINUS JAW RUN rock shall be accomplished with either belt scales or certified platform scales provided by the Purchaser.

7.2.3-3A
Belt scales shall meet the following specifications:

a. The belt conveyor scale shall meet the design, marking, installation, and tolerance requirements of Section 1-09.2(4) of the Washington State Department of Transportation's Standard 2002 Specifications except where this contract modifies those requirements.

b. To test the accuracy of the belt scale, a minimum of two loaded haul trucks must be weighed on a certified platform scale. This weight shall be compared with the belts scales weight. The compared weight shall not vary more than 0.5%. The Purchaser shall check the scale's accuracy using this method after every 7,000 cubic yards crosses the belt, or when directed by the Contract Administrator.

c. Under observation of the Contract Administrator, the Purchaser shall run a daily zero load test in accordance with the National Bureau of Standards Handbook No. 44. The contractor shall not be required to perform a daily static load test or a chain test.

d. The weighing mechanism shall contain a weight totalizer and a self printing ticket imprinter. The totalizer calibration adjustment and ticket imprinter shall be furnished with a hasp to accept a State padlock. A ticket for each truck shall be made and delivered to the Contract Administrator upon request.

7.2.3-3B
State certified platform scales shall meet the following specifications:

a. The scales shall have an enclosed weatherproof room around the reading device.

b. The weighing mechanism shall contain a weight totalizer and ticket imprinter. A ticket for each truck shall be made and delivered to the Contract Administrator.

c. The totalizer calibration adjustment and ticket imprinter shall be furnished with a hasp to accept a State padlock.

7.2.3-4

At the commencement of operations, a weight per cubic yard shall be calculated as follows:

a. The box of a truck to be used for rock haul shall be measured.

b. A load of rock shall be flattened off in the truck and its exact volume in cubic yards calculated.

c. Trucks shall be weighed for tare and gross weight at a State certified platform scale.

d. The net weight of the load shall be divided by the volume calculated in Step b.

Conversion factors thus calculated shall be valid for no more than 30 days or until rock density or moisture changes significantly, as determined by the Contract Administrator.

7.4.2-1

Apply at least the minimum rock quantity as shown on ROCK LIST. Rock shall meet the specifications on the ROCK LIST.

7.4.2-3D

A grader shall be used to shape the subgrade prior to subgrade compaction.

7.4.2-7

Turnarounds, turnouts, and curve widening shall have rock applied to the same depth and specifications as the traveled way.

7.4.2-8

Each lift of rock shall be crowned as shown on TYPICAL SECTION SHEET, and shall be uniform, firm, rut-free, and shaped to ensure surface runoff in an even, unconcentrated manner.

7.4.3-1

Rock shall be mixed, compacted, and graded in sections not to exceed ½ mile in length. Water shall be added in quantities to facilitate compaction. If directed by the Contract Administrator, a minimum of 6 gallons of water per cubic yard of rock shall be applied.

7.4.3-2

Rock shall be spread and compacted full width in lifts each not to exceed 8 inches uncompacted depth. Compaction shall be by smooth drum vibratory roller weighing at least 14,000 pounds. Four complete passes at a maximum speed of 3 mph shall be made on each lift.

SECTION 9 - ROAD AND LANDING DEACTIVATION

9.2-1

Purchaser shall reduce or relocate landing debris, in a manner approved, in writing, by the Contract Administrator, to avoid landing failures and potential debris slides.

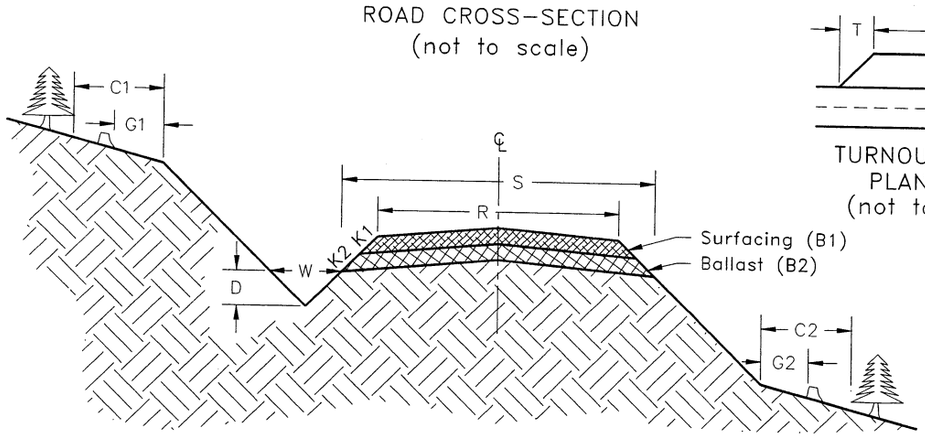
9.2-2

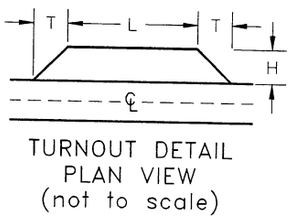
Purchaser shall provide for drainage of the landing surface as approved, in writing, by the Contract Administrator.

9.2-3

Landing embankments shall be sloped to original construction specifications.

TYPICAL SECTION SHEET

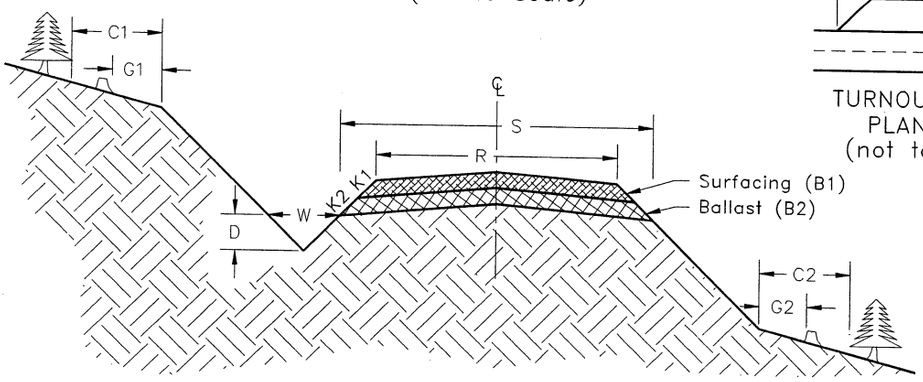


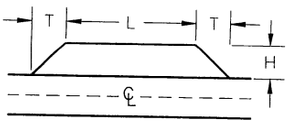


Road Number	From Station	To Station	Tolerance Class	Subgrade Width	Road Width	Ditch		Crown in. @ CL	Grubbing Limits		Clearing Limits	
						Width	Depth					
				S	R	W	D		G1	G2	C1	C2
C-Line	0+00	81+84	C	16'	12'	3'	1'	5"	-	-	-	-
C-Line Tie Rd	0+00	7+16	C	16'	12'	3'	1'	5"	5'	5'	10'	10'
H-Line	42+24	73+39	C	16'	12'	3'	1'	5"	-	-	-	-
H-1200	0+00	25+34	C	16'	12'	3'	1'	5"	2'	2'	5'	5'
H-1230	58+08	104+93	C	16'	12'	3'	1'	5"	2'	2'	5'	5'
	104+93	117+74	C	16'	12'	3'	1'	5"	5'	5'	10'	10'
A-2060	0+00	19+68	C	16'	12'	3'	1'	5"	5'	5'	10'	10'
H-1210	0+00	21+45	C	14'	12'	3'	1'	5"	2'	2'	5'	5'

ROCK LIST
(Page 1 of 2)

ROAD CROSS-SECTION
(not to scale)





TURNOUT DETAIL
PLAN VIEW
(not to scale)

BALLAST

Road Number	From Station	To Station	Rock Slope	Compacted Rock Depth	C.Y./ Station	# of Stations	C.Y. Subtotal	Rock Source	Turnout Length	Turnout Width	Taper
			K2	B2					L	H	T
					4 INCH MINUS			H-1210 Quarry			
C-Line	0+00	81+84	1 ½:1	6"	33	81.84	2,701				
	Turnouts (7)		1 ½:1	6"	33	7.00	231		50'	10'	50'
C-Line Tie Rd	0+00	7+16	1 ½:1	12"	54	7.16	387				
H-Line	42+24	73+39	1 ½:1	6"	33	31.15	1,028				
	Turnouts (3)		1 ½:1	6"	33	3.00	99		50'	10'	50'
H-1200	0+00	25+34	1 ½:1	6"	33	25.34	836				
	Turnouts (2)		1 ½:1	6"	33	2.00	66		50'	10'	50'
H-1230	58+08	104+93	1 ½:1	6"	33	46.85	1,546				
	Turnouts (4)		1 ½:1	6"	33	4.00	132		50'	10'	50'
H-1230	104+93	117+74	1 ½:1	12"	54	12.81	692				
	Turnout (1)		1 ½:1	12"	54	1.00	54		50'	10'	50'
H-1210	0+00	21+45	1 ½:1	6"	33	21.45	708				
	Turnout (1)		1 ½:1	6"	33	1.00	33		50'	10'	50'
A-2060	0+00	19+68	1 ½:1	12"	54	19.68	1,063				
	Turnouts (2)		1 ½:1	12"	54	2.00	108		50'	10'	50'
					8 INCH PLUS						
C-Line	Culverts						8				
C-Line Tie Rd	Culverts						2				
H-Line	Culverts						4				
H-1200	Culverts						8				
H-1230	Culverts						7				

4 INCH MINUS JAW RUN TOTAL 9,6848 Cubic Yards
8 INCH PLUS TOTAL 29 Cubic Yards

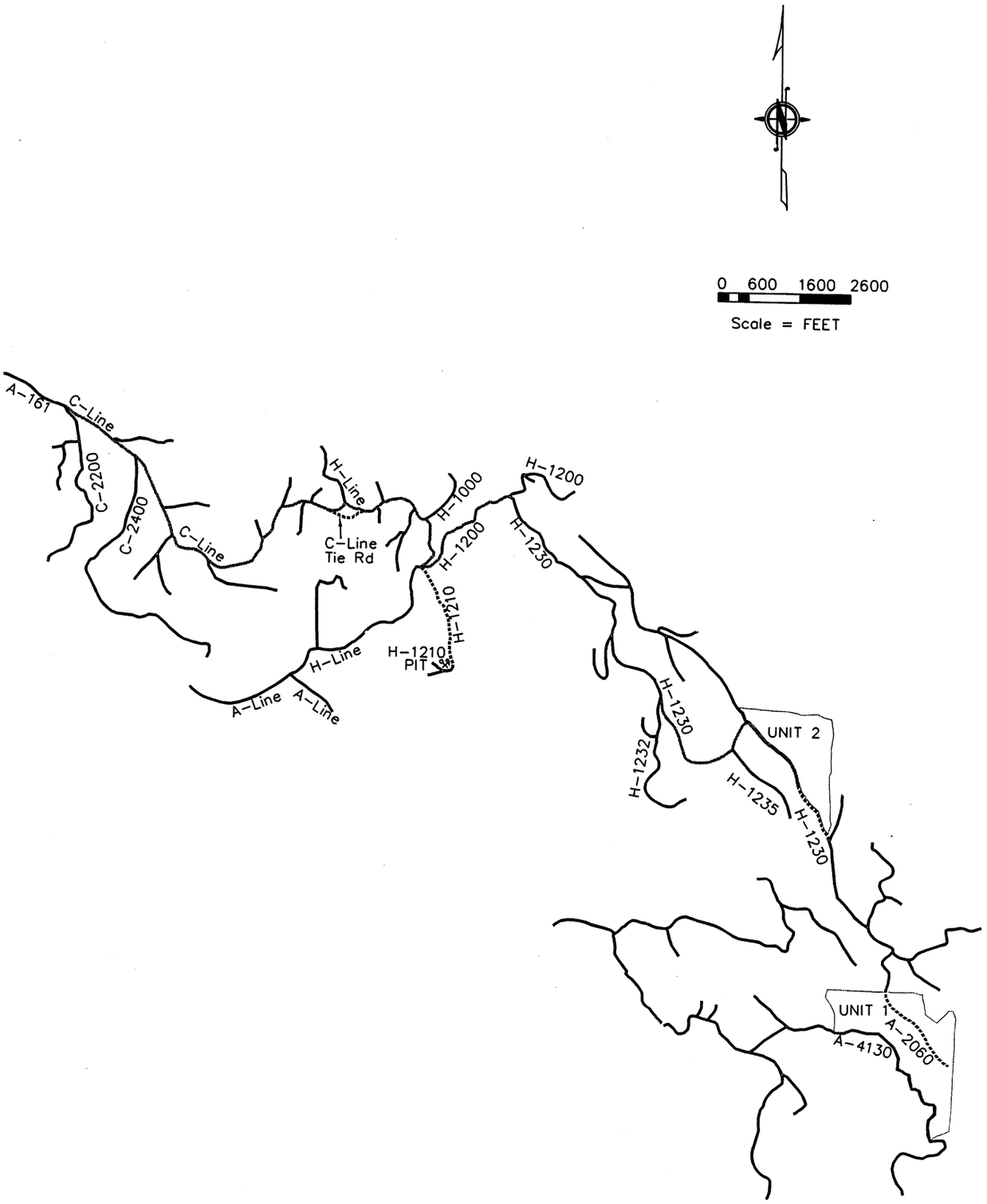
ROCK LIST
(Page 2 of 2)

SURFACE

Road Number	From Station	To Station	Rock Slope	Compacted Rock Depth	C.Y./ Station	# of Stations	C.Y. Total	Rock Source
			K1	B1				
					3 INCH MINUS CRUSHED			H-1210 Quarry
C-Line	0+00	81+84	1 ½:1	6"	30	81.84	2,455	
	Turnouts (7)		1 ½:1	6"	30	7.00	210	
	Culvert backfill						120	
C-Line Tie Rd	0+00	7+16	1 ½:1	6"	30	7.16	215	
	Culvert backfill						25	
H-Line	42+24	73+39	1 ½:1	6"	30	31.15	935	
	Turnouts (3)		1 ½:1	6"	30	3.00	90	
	Culvert backfill						130	
H-1200	0+00	25+34	1 ½:1	6"	30	25.34	760	
	Turnouts (2)		1 ½:1	6"	30	2.00	60	
	Culvert backfill						155	
H-1230	58+08	117+74	1 ½:1	6"	30	59.66	1,790	
	Turnouts (5)		1 ½:1	6"	30	5.00	150	
	Culvert backfill						90	
A-2060	0+00	19+68	1 ½:1	6"	30	19.68	590	
	Turnouts (2)		1 ½:1	6"	30	2.00	60	
H-1210	0+00	21+45	1 ½:1	6"	30	21.45	644	
	Turnout (1)		1 ½:1	6"	30	1.00	30	

3 INCH MINUS CRUSHED TOTAL 8,509 Cubic Yards

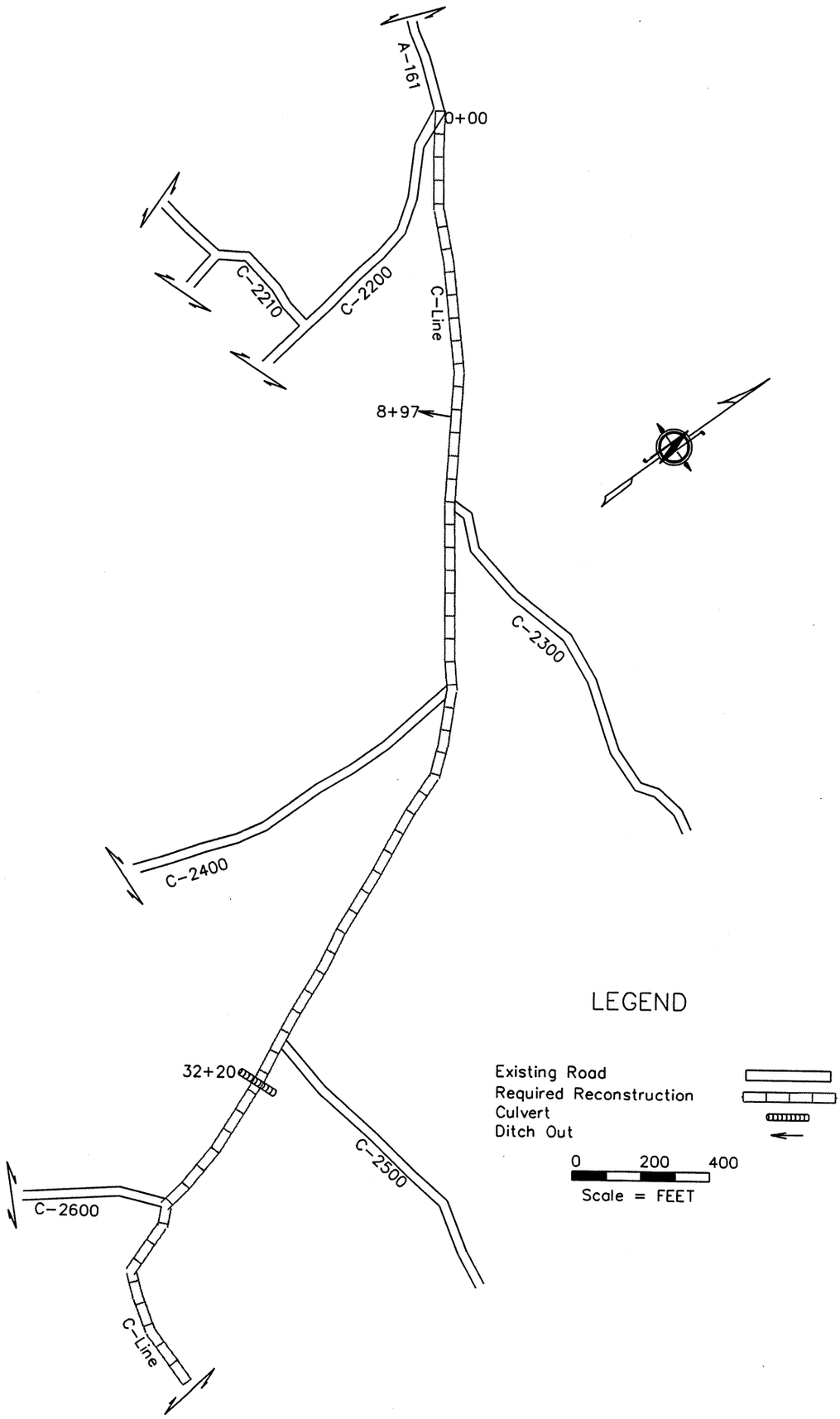
FIRST TIME
ROAD PLAN MAP
(Page 1 of 7)



FIRST TIME

ROAD PLAN MAP

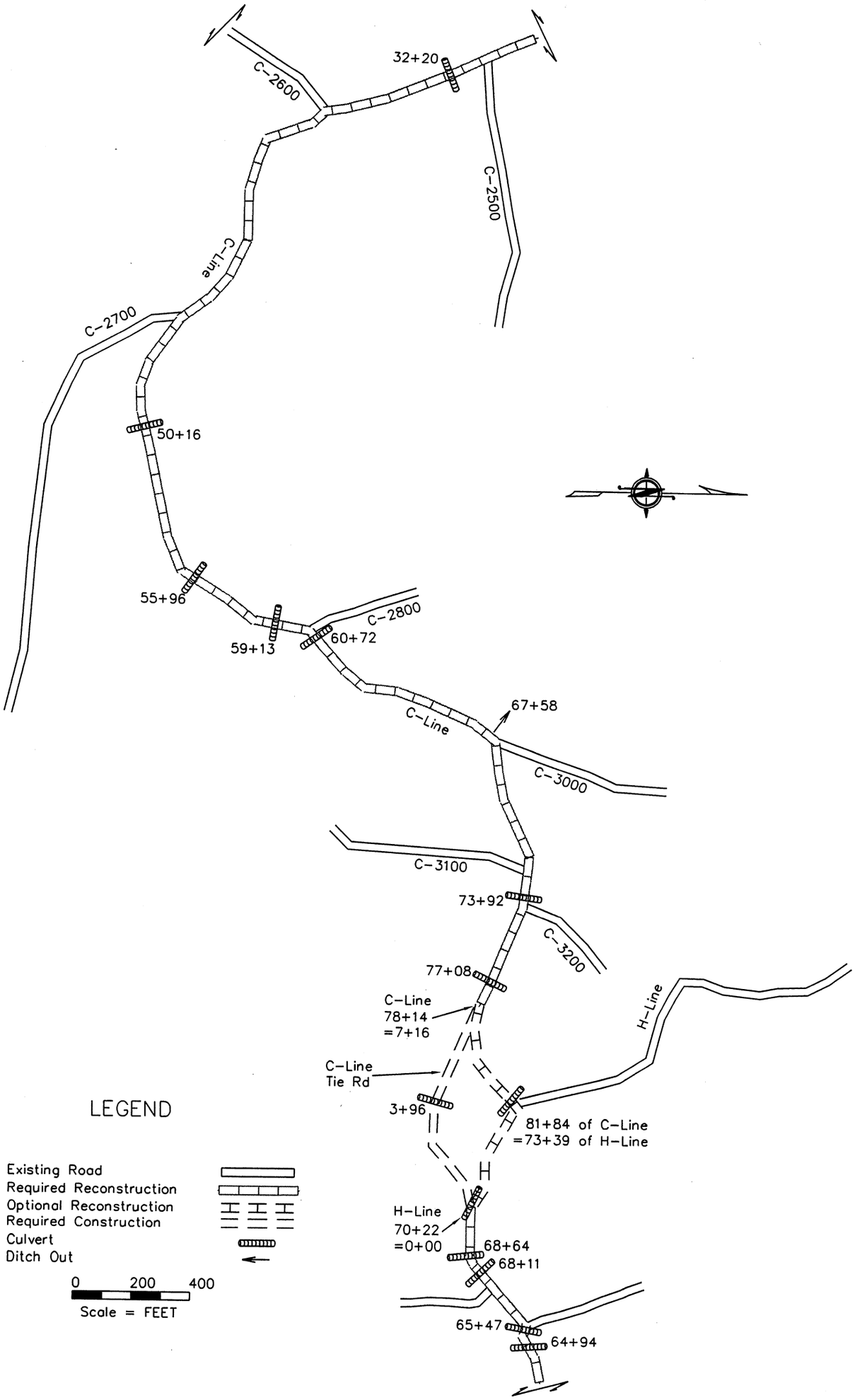
(Page 2 of 7)



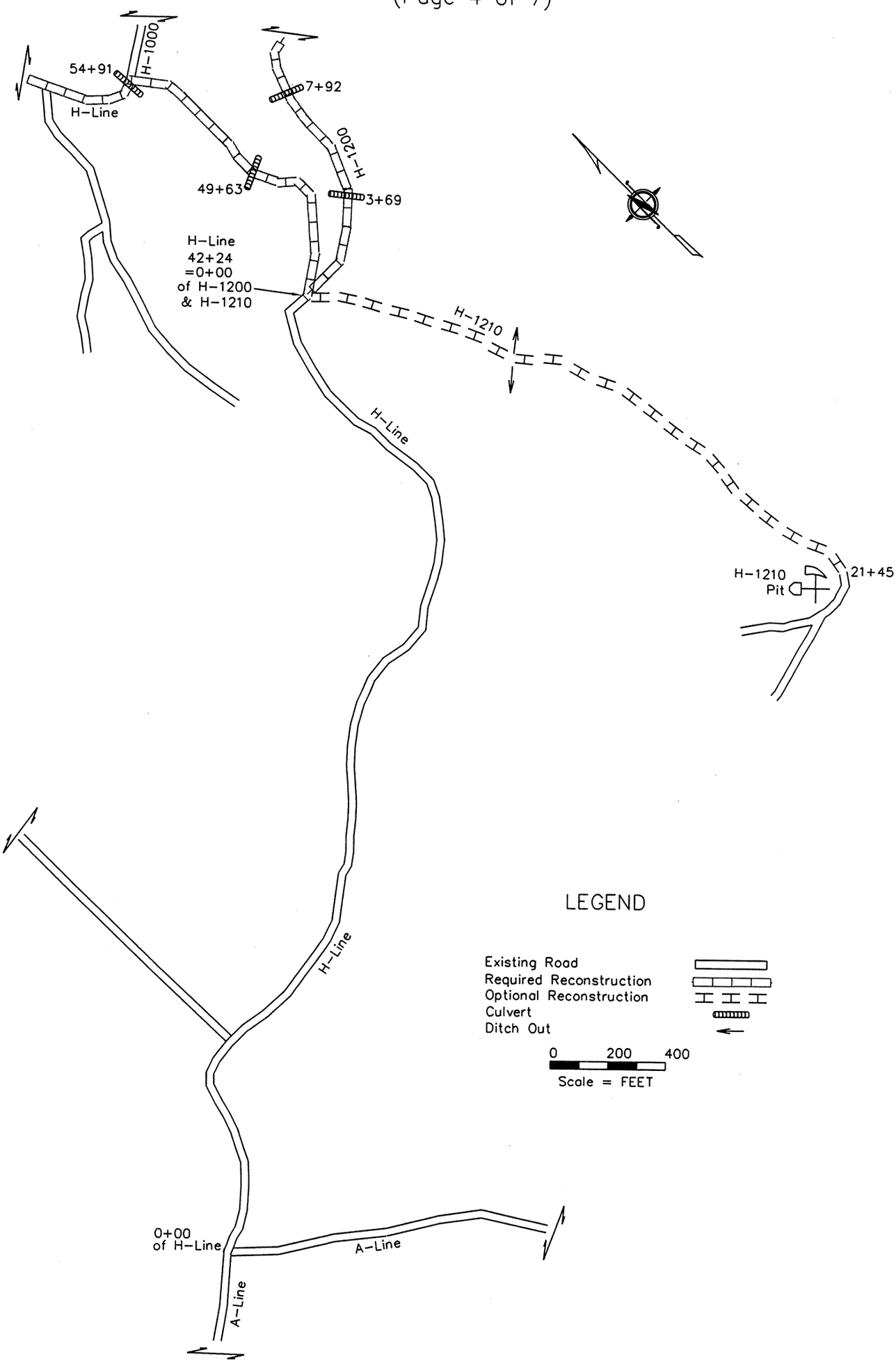
FIRST TIME

ROAD PLAN MAP

(Page 3 of 7)



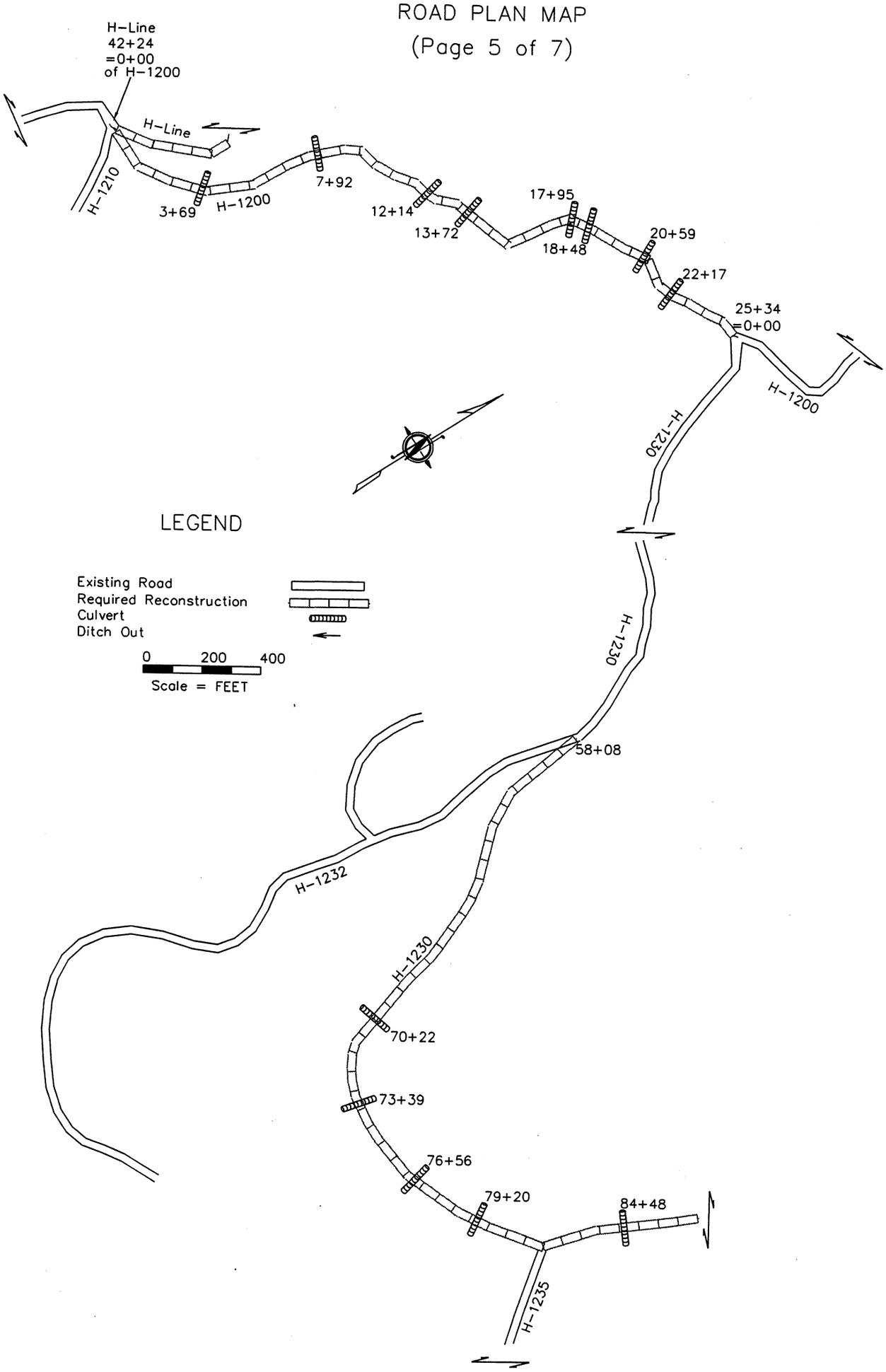
FIRST TIME
ROAD PLAN MAP
(Page 4 of 7)



FIRST TIME

ROAD PLAN MAP

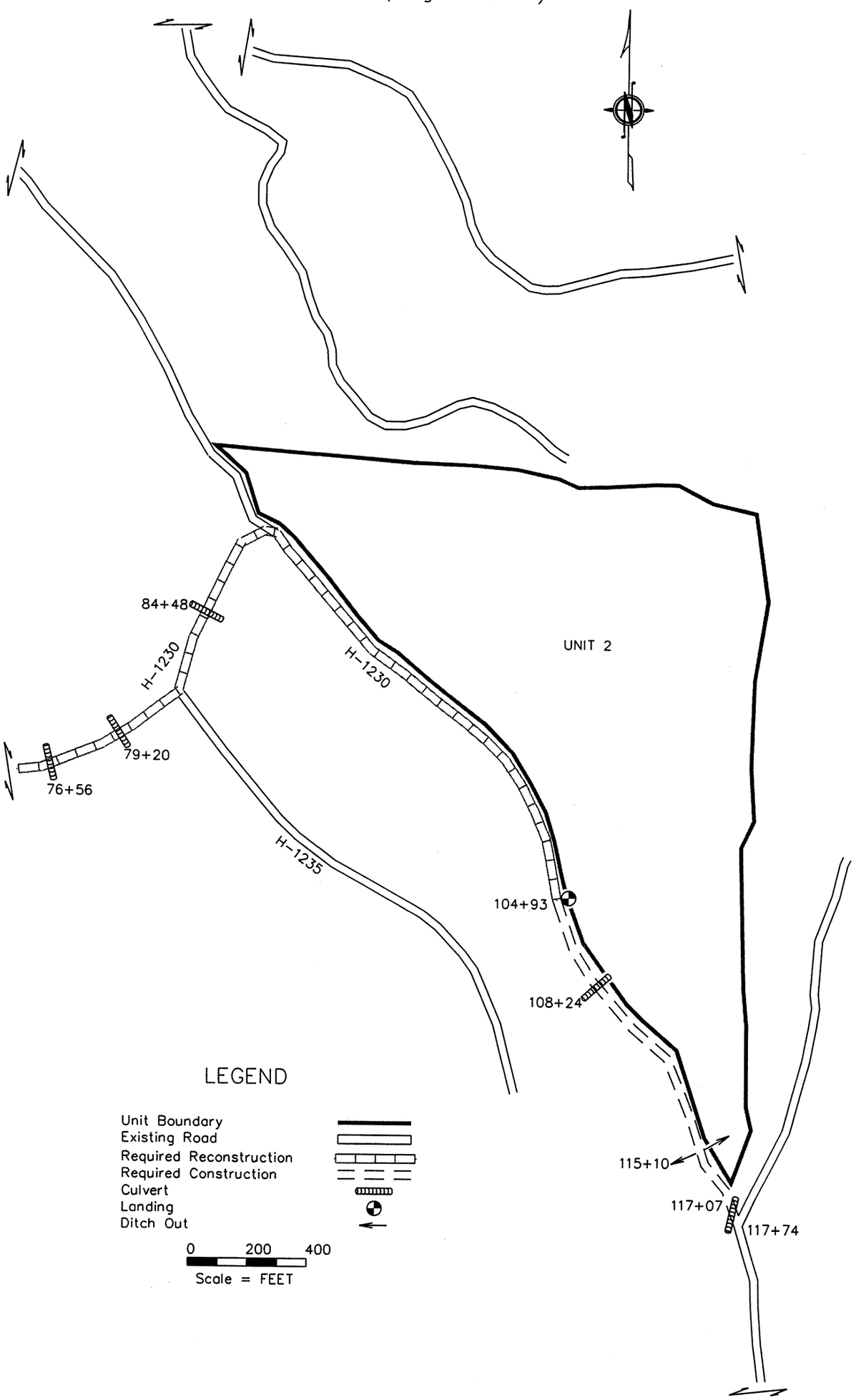
(Page 5 of 7)



FIRST TIME

ROAD PLAN MAP

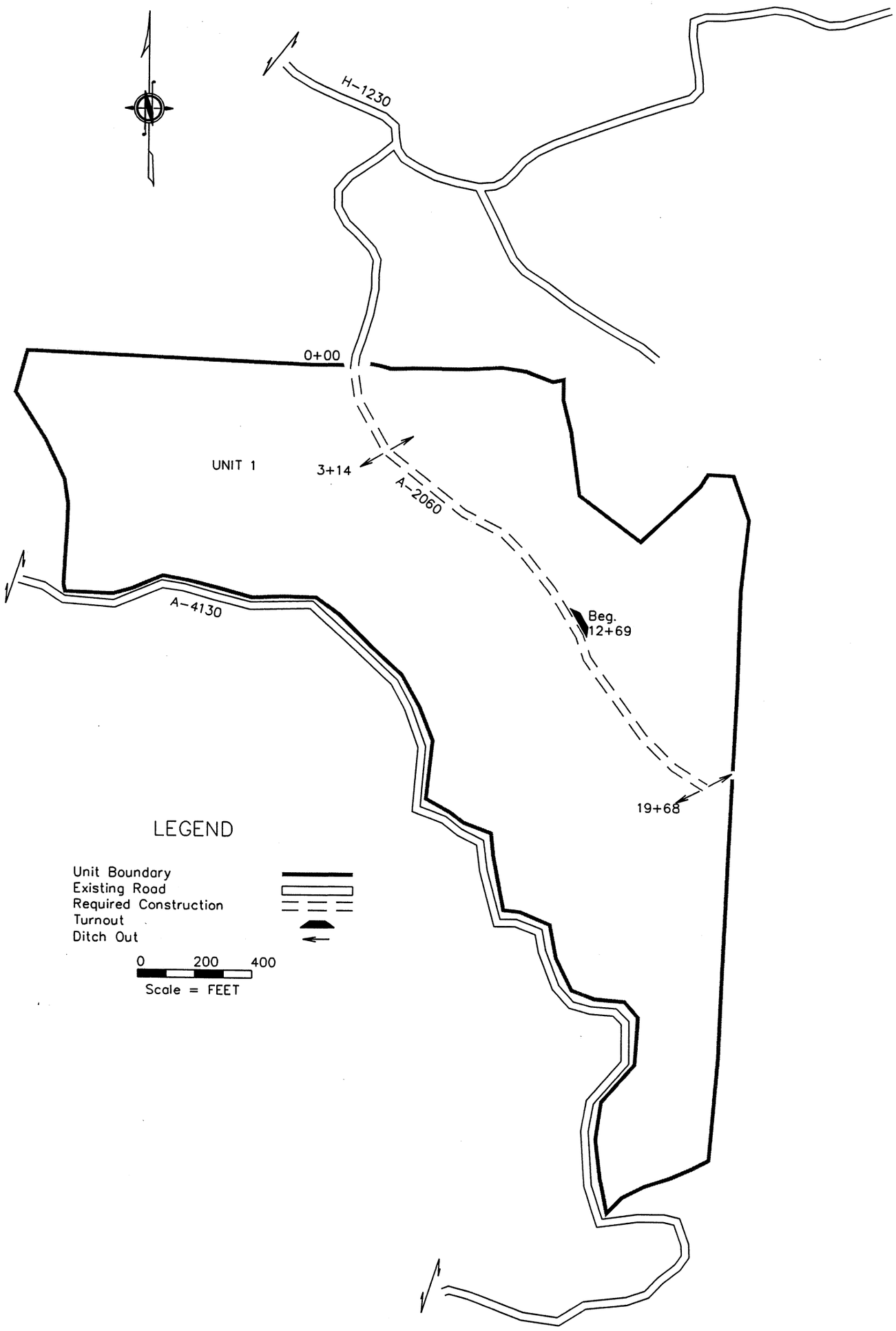
(Page 6 of 7)



FIRST TIME

ROAD PLAN MAP

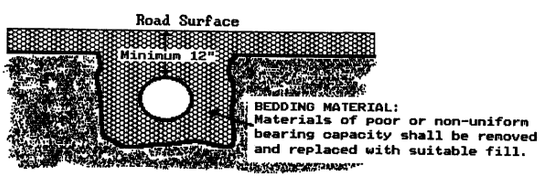
(Page 7 of 7)



CULVERT LIST

Road Number	Location	Culvert Dia.	Culvert Gauge	Length (ft) Culvert	Length (ft) Downspt	Length (ft) Flume	Riprap (C.Y.) Inlet	Riprap (C.Y.) Outlet	Riprap (C.Y.) Type	Backfill Material	Quantity c.y.	Stream Type	Remarks
			If Steel										
C-Line	32+20	18"	CPP	34	-	-	0.5	0.5	8"	3"	15	-	
	50+16	18"	CPP	34	-	-	0.5	0.5	8"	3"	15	-	
	55+96	18"	CPP	32	-	-	0.5	0.5	8"	3"	15	-	
	59+13	18"	CPP	34	-	-	0.5	0.5	8"	3"	15	-	Replace existing
	60+72	18"	CPP	30	-	-	0.5	0.5	8"	3"	15	-	
	73+92	18"	CPP	34	-	-	0.5	0.5	8"	3"	15	-	
	77+08	18"	CPP	34	-	-	0.5	0.5	8"	3"	15	-	
	81+84	18"	CPP	34	-	-	0.5	0.5	8"	3"	15	-	Replace existing
C-Line Tie Rd	0+00	18"	CPP	50	-	-	0.5	0.5	8"	3"	25	-	
	3+96	18"	CPP	34	-	-	0.5	0.5	8"	-	-	-	
H-Line	49+63	18"	CPP	32	-	-	0.5	0.5	8"	3"	15	-	
	54+91	18"	CPP	40	-	-	0.5	0.5	8"	3"	15	-	
	64+94	18"	CPP	36	-	-	0.5	0.5	8"	3"	15	-	
	65+47	24"	CPP	42	-	-	-	-	-	3"	30	5	Replace puncheon
	68+11	18"	CPP	34	-	-	0.5	0.5	8"	3"	15	-	
	68+64	24"	CPP	52	-	-	-	-	-	3"	40	5	Replace existing
H-1200	3+69	18"	CPP	34	-	-	0.5	0.5	8"	3"	15	-	
	7+92	18"	CPP	34	-	-	0.5	0.5	8"	3"	15	-	
	12+14	18"	CPP	34	-	-	0.5	0.5	8"	3"	15	-	
	13+72	24"	CPP	50	-	-	-	-	-	3"	30	5	Replace existing
	17+95	18"	CPP	34	30	-	0.5	-	8"	3"	15	-	
	18+48	18"	CPP	40	-	-	-	-	-	3"	20	5	Replace existing
	20+59	18"	CPP	34	-	-	0.5	0.5	8"	3"	15	-	
	22+17	24"	CPP	52	-	-	3	-	8"	3"	30	5	Replace existing
H-1230	70+22	18"	CPP	34	-	-	0.5	0.5	8"	3"	15	-	
	73+39	-	-	-	-	-	-	1.0	8"	-	-	-	Existing culvert
	76+56	18"	CPP	34	-	-	0.5	0.5	8"	3"	15	-	
	79+20	18"	CPP	34	-	-	0.5	0.5	8"	3"	15	-	
	84+48	18"	CPP	34	-	-	0.5	0.5	8"	3"	15	-	
	108+24	18"	CPP	30	-	-	0.5	0.5	8"	3"	15	-	
	117+07	18"	CPP	34	-	-	0.5	0.5	8"	3"	15	-	

CULVERT BACKFILL AND BASE PREPARATION
(For culverts less than 36")

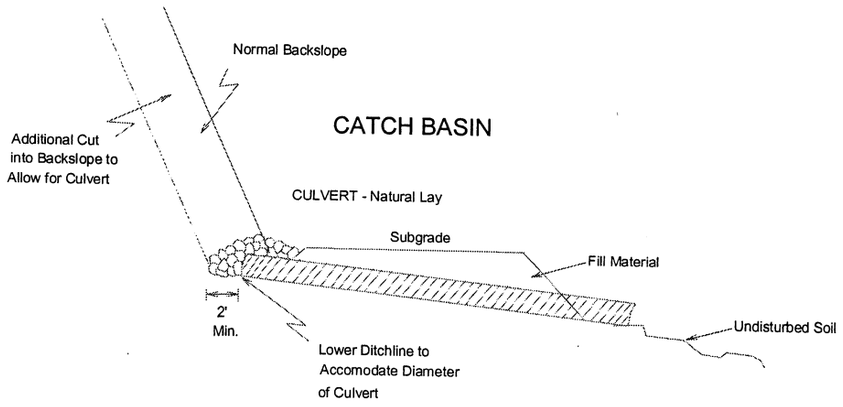


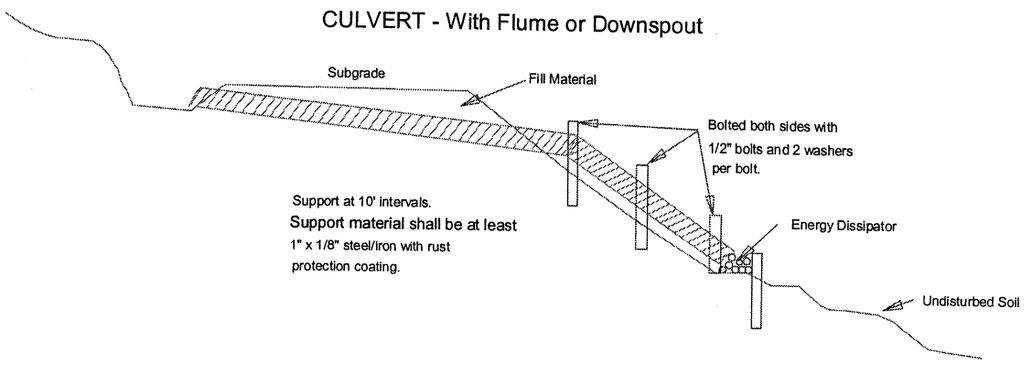
Key:

8" - 8 Inch Plus Rock
3" - 3 Inch Minus Crushed Rock
NT - Native (bank run)
SL - Select Fill
HL - Heavy Loose Riprap
LL - Light Loose Riprap
Flume - Half round pipe
Downspout - Full round pipe
CPP – Corrugated Polyethylene Pipe

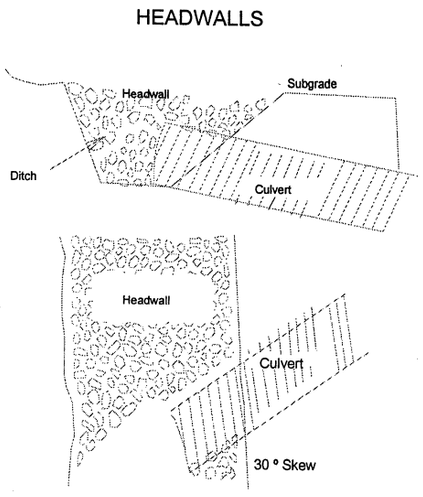
CULVERT AND DRAINAGE SPECIFICATION DETAIL

(Page 1 of 2)

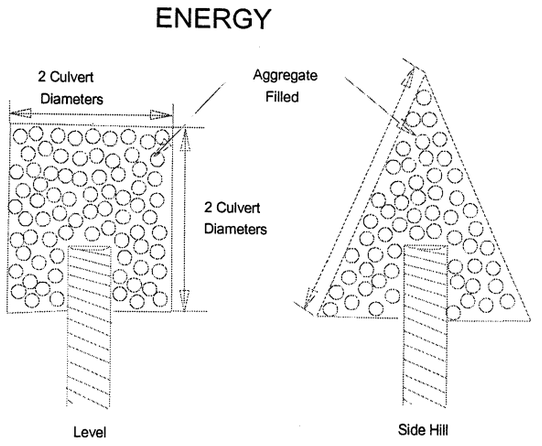




Proper preparation of foundation and placement of bedding material shall precede the installation of all culvert pipe. This includes necessary leveling of the native trench bottom and compaction of required bedding material to form a uniform dense unyielding base. The backfill material shall be placed so that the pipe is uniformly supported along the barrel.



Headwalls to be constructed of material that will resist erosion.



Dissipator Specifications:
Depth: 1 culvert diameter
Aggregate: as specified in the CULVERT LIST.

CULVERT AND DRAINAGE SPECIFICATION DETAIL

(Page 2 of 2)

POLYETHYLENE PIPE INSTALLATION

INSTALLATION REQUIREMENTS:

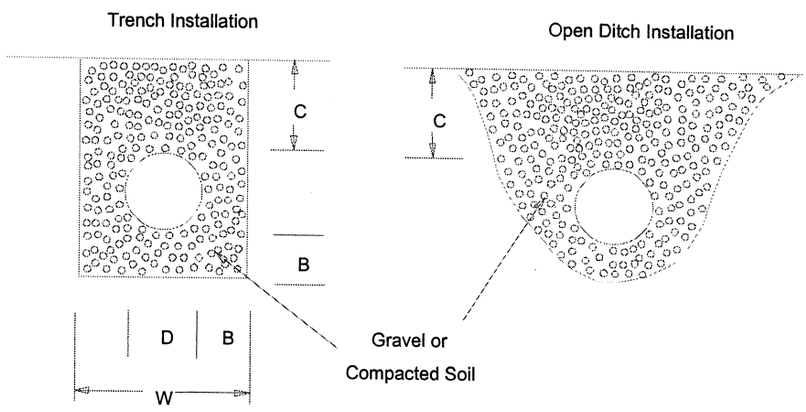
1. Crushed stone, gravel, or compacted soil backfill material shall be used as the bedding and envelope material around the culvert. The aggregate size shall not exceed 1/6 pipe diameter or 4" diameter, whichever is smaller.

2. The corrugated pipe shall be laid on grade, on a layer of bedding material as shown for the two types of installations. If native soil is used as the bedding and backfill material, it shall be well compacted in six inch layers under the haunches, around the sides and above the pipe to the recommended minimum height of cover.

3. Either crushed aggregate or flexible (asphalt) pavement may be laid as part of the minimum cover requirements.

4. Site conditions and availability of bedding materials often dictate the type of installation method used.

5. The load bearing capability of flexible conduits is dependent on the type of backfill material used and the degree of compaction achieved. Crushed stone and gravel backfill materials typically reach a compaction level of 90-95% AASHTO standard density without compaction. When native soils are used as backfill material, a compaction level of 85% is required. This minimum compaction can be achieved by either hand or mechanical tamping.



MINIMUM DIMENSIONS
Trench or Open Ditch Installation

Nominal Diameter	Minimum Thickness	Minimum Cover	Min. Trench Width
D	B	C	W
18"	6"	12"	36"
24"	6"	12"	42"
30"	6"	12"	48"
36"	6"	12"	54"

STATE OF WASHINGTON
DEPARTMENT OF NATURAL RESOURCES

FOREST ACCESS ROAD
MAINTENANCE SPECIFICATIONS

1. CONSTRUCTION AND RECONSTRUCTION (Prior to acceptance to the contract or acceptance on a timber sale).

A. Cuts and Fills
   1. Maintain slope lines as constructed. Remove slides from the ditches and roadway. Replace fills to 12 :1 slopes with selected material or as directed. Remove overhanging material from the cut slopes.
   2. Material from slides or other sources requiring removal shall not be deposited in streams or at locations where it will erode into streams or water courses.
   3. Undesirable slide materials and debris shall not be mixed into the surface material.

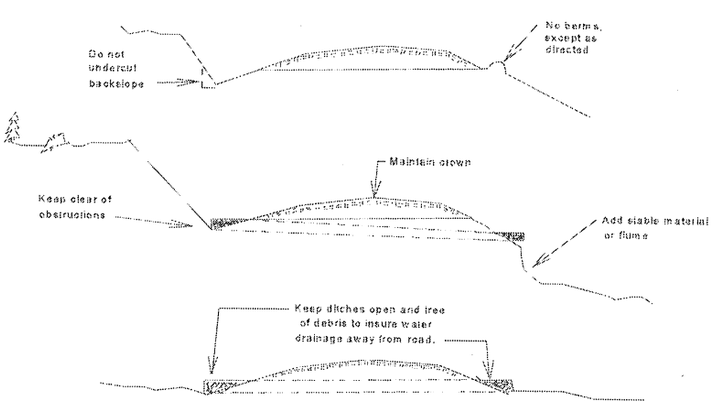
B. Surface
   1. Grade and shape the road surface, turnouts, and shoulders to the original crown, inslope or outslope as directed to provide suitable traveled surface and surface water runoff in an even, unconcentrated manner.
   2. Blading must not undercut the backslope at the bottom of the ditchline or cut geotextile at centerline.
   3. Watering may be required to control dust and to retain fine surface rock.
   4. Desirable surface material shall not be bladed off the roadway.
   5. Replace surface material lost or worn away.
   6. Remove berms except as directed by the State.
   7. Barrel spread soft spots to prevent degradation of geotextile.

C. Drainage
   1. Keep ditches and drainage channels at outlets and inlets of culverts clear of obstructions and functioning as intended.
   2. Inspect and clean culverts at least monthly, with additional inspections during storms and periods of high runoff. This must be done even during periods of inactivity.
   3. Add stable material at the outlet end of the culvert as needed to stabilize the stream bed.
   4. Headwalls: maintain to the road shoulder level with material that will resist erosion.
   5. Keep silt bearing surface runoff from getting into live streams.

D. Structures
   Repair bridges, culverts, cattleguards, fences, and other road structures to the condition required by the construction specifications.

E. Termination of Use or End of Season
   Do maintenance work to minimize damage from the elements such as blading to insure correct runoff, ditch, and culvert cleaning and water bars.

F. Debris
   Remove fallen timber, limbs, and stumps from the slopes or roadway.



DEPARTMENT OF NATURAL RESOURCES - PACIFIC CASCADE

FORM 9-87(Rev. 12-02)

SUMMARY - Road Development Costs

DISTRICT: St Helens

SALE/PROJECT NAME: First Time CONTRACT NUMBER: 30-075059

LEGAL DESCRIPTION: Sections 3,4,5,8,10,11, and 14 Township 11 North, Range 9 West W.M.

ROAD NUMBER:	C line	H 1200, H line	H 1230	A 2060	H 1210	C line shoe fly
ROAD STANDARD:	Secondary Mainline (12' R.S.)	Secondary Mainline (12' R.S.)	Secondary Mainline (12' R.S.)	Secondary Mainline (12' R.S.)	Secondary Mainline (12' R.S.)	Secondary Mainline (12' R.S.)
NUMBER OF STATIONS:	81.84	56.49	59.66	19.68	21.45	7.16
SIDESLOPE:	0-10%	10-60%	10-50%	10-50%	10-60%	0-10%
CLEARING AND GRUBBING:	$8,380	$9,694	$9,307	$3,070	$3,681	$733
EXCAVATION AND FILL:	$7,202	$23,613	$18,169	$3,247	$8,607	$630
ROCK TOTALS (Cu. Yds.):						
Ballast: 7384	$26,036	$18,029	$24,652	$14,145	$5,950	$3,247
Surface: 6945	$26,820	$20,530	$22,170	$8,665	$5,917	$2,194
Riprap: 27	$51	$77	$54	$0	$0	$12
CULVERTS AND FLUMES:	$3,218	$7,619	$2,419	$0	$0	$610
STRUCTURES:	$0	$0	$0	$0	$0	$0
GENERAL EXPENSES:	$6,454	$7,161	$6,909	$2,621	$2,174	$668
MOBILIZATION:	$1,282	$1,282	$1,282	$1,282	$1,282	$1,282
TOTAL COSTS:	$79,442	$88,004	$84,962	$33,031	$27,612	$9,376
COST PER STATION:	$971	$1,558	$1,424	$1,678	$1,287	$1,309

NOTE: This appraisal has no allowance for profit and risk.

TOTAL (All Roads) = $322,426

SALE VOLUME MBF = 4,533

TOTAL COST PER MBF = $71.13

Plans to be furnished by:

Plan only: STATE

Plan-profile:

Compiled by: B Freeman Date: 11/30/04

Checked by: _____ Date: _____

Region Engineer: _____ Date: _____

Div of Engr.: _____ Date: _____

REMARKS: _____

Sheet 1 of 4

PC REGION - ROAD COST ESTIMATE

SALE NAME: First Time

CONTRACT NUMBER: N/A

I. CLEARING AND GRUBBING:

Flat Rate -	% Side Slope	MBF/ac	Disposal Factor	Production Factor	Cost/ Station	Width Factor	Total Stations	Sub Total
C Line Reconstr.	10%	25	1.00	2.56	$40	1.00	81.84	$8,380
								$0
								$0
								$0
								$0

Clear and Grub TOTAL = $8,380

II. EXCAVATION:

Flat Rate -	% Side Slope	Exc. Type Fact.	Production Factor	Cost/ Station	Width Factor	Total Stations	Sub Total
C line		1.00	1.00	$88	1.00	81.84	$7,202
						0.00	$0
						0.00	$0
						0.00	$0
						0.00	$0

*End Haul, Over Haul, Large Fills/Cuts

	Estimated Vol. (cy)	No. of Equip. Days	Cost/day	Sub Total
End Haul/ Over Haul				$0
Large Fills/ Cuts				$0

Excavation TOTAL = $7,202

III. BALLAST AND SURFACING :

Ballast source: H 1210 pit
Surface source: H 1210 pit
8" + rock source : H 1210 pit

Description	cu.yds/sta	x stations	= cubic yards
Ballast (4"-)	36	81.84	2,932
Surfacing (3"-)	34	81.84	2,785
8"+	8	1.00	8

UNIT COSTS	Ballast	Surfacing	Riprap
Drill & Shoot	$2.50	$2.50	$2.50
Dig and load	$0.50	$0.50	$0.50
Crushing	$2.50	$3.25	
Purchase			
Haul *	$2.13	$2.13	$2.13
Spread	$0.80	$0.80	$0.80
Compact	$0.45	$0.45	$0.45
Strip			
Reclamation			
TOTAL ($/cy)	$8.88	$9.63	$6.38

* Haul Formula: (R.T.Miles/MPH+Delay)($/hr / Cy/load)

R.T. Miles = 3.0
Ave. Speed = 15
Delay (Hrs.)= 0.2
Cost / Hour = $64.00
CY / Load = 12

Ballast (4"-)	2932	Cu. yds @	$8.88 /cu. yd =	$26,036
Surfacing (3"-)	2785	Cu. yds @	$9.63 /cu. yd =	$26,820
8"+	8	Cu. yds @	$6.38 /cu. yd =	$51

Rock total = $52,907

IV. CULVERTS AND FLUMES:

Description	Qty.	Gauge	Diameter	No/Length	Installed Cost/ft	Sub-total
	1	NA	18	30	$11.80	$354
	1	NA	18	32	$11.80	$378
	6	NA	18	34	$11.80	$2,407
Bands & Gaskets	8	NA	18		$9.90	$79

Culvert total = $3,218

V. STRUCTURES

Description	Type	Width	Length	Cost/ft.	Sub-total
					$0
					$0
					$0

Structure total = $0

Sub-TOTAL = $71,707

VI. GENERAL EXPENSES: Overhead & General Exp. Add 9% $6,454

VII. MOBILIZATION:

* Move in costs are averaged over all six sheets.

Description	$ per Move	# of Moves	Sub-total
Dump Trucks	100	4	$400
Grader	400	1	$400
Compactor	400	1	$400
Excavator	450	1	$450
Dozer D8)	400	1	$400
Front end loader	400	1	$400
Rock crusher	$5,000	1	$5,000
Dozer (D5)	$240	1	$240

Total Mobilization = $7,690 Mobilization sub-total = $1,282

Road No. C line
Standard: Secondary Mainline (12' R.S.)
Stations: 81.84

SHEET TOTAL = $79,442

By: B Freeman

Date: 11/30/04

CENTRAL REGION - ROAD COST ESTIMATE

SALE NAME: First Time

CONTRACT NUMBER: N/A

I. CLEARING AND GRUBBING:

Flat Rate -	% Side Slope	MBF/ac	Disposal Factor	Production Factor	Cost/ Station	Width Factor	Total Stations	Sub Total
H 1200, H line	30%	35	1.00	3.90	$40	1.00		$0
	40%	25	1.00	4.29	$40	1.00	56.49	$9,694
	50%	35	1.00	4.70	$40	1.00		$0
	60%	35	1.00	6.15	$40	1.00		$0

Clear and Grub TOTAL = $9,694

II. EXCAVATION:

Flat Rate -	% Side Slope	Exc. Type Fact.	Production Factor	Cost/ Station	Width Factor	Total Stations	Sub Total
H 1200, H line	30%	1.00	2.50	$88	1.00	0.00	$0
	40%	1.00	4.56	$88	1.00	56.49	$22,668
	50%	1.00	6.85	$88	1.00	0.00	$0

*End Haul, Over Haul, Large Fills/Cuts	Estimated Vol. (cy)	No. of Equip. Days	Cost/day	Sub Total
2-24" cmps under 8' fills	140	1	$1,260	$945
				$0

Excavation TOTAL = $23,613

III. BALLAST AND SURFACING :

Ballast source: H 1210 pit
Surface source: H 1210 pit
8"+ rock source : H 1210 pit

Description	cu.yds/sta	x stations	= cubic yards
Ballast (4"-)	36	56.49	2,028
Surfacing (3"-)	38	56.49	2,130
8"+	12	1.00	12

UNIT COSTS	Ballast	Surfacing	Riprap
Drill & Shoot	$2.50	$2.50	$2.50
Dig and load	$0.50	$0.50	$0.50
Crushing	$2.50	$3.25	
Purchase			
Haul *	$2.14	$2.14	$2.14
Spread	$0.80	$0.80	$0.80
Compact	$0.45	$0.45	$0.45
Strip			
Reclamation			
TOTAL ($/cy)	$8.89	$9.64	$6.39

* Haul Formula: (R.T.Miles/MPH+Delay)($/hr / Cy/load)

R.T. Miles =	2.0
Ave. Speed =	15
Delay (Hrs.)=	0.2
Cost / Hour =	$77.00
CY / Load =	12

Ballast (4"-)	2028	Cu. yds @	$8.89 /cu. yd =	$18,029
Surfacing (3"-)	2130	Cu. yds @	$9.64 /cu. yd =	$20,530
8"+	12	Cu. yds @	$6.39 /cu. yd =	$77

Rock total = $38,636

IV. CULVERTS AND FLUMES:

Description	Qty.	Gauge	Diameter (in.)	No/Length (ft)	Installed Cost/ft	Sub-total
	1	na	18	32	$11.80	$378
	2	na	18	40	$11.80	$944
	1	na	18	36	$11.80	$425
	1	14	24	42	$16.70	$701
	6	na	18	34	$11.80	$2,407
	2	14	24	52	$16.70	$1,737
	1	14	24	50	$16.70	$835
Bands & Gaskets	9 - 18"@$9.90ea, 8 -24" @ $13.20 ea., 0 - 36" @ $24.15 ea					$192

Culvert total = $7,619

V. STRUCTURES

Description	Type	Width	Length	Cost/ft.	Sub-total
					$0
					$0
					$0

Structure total = $0

Sub-TOTAL = $79,561

VI. GENERAL EXPENSES:

Overhead & General Exp. Add 9% $7,161

VII. MOBILIZATION:

* Move in costs are averaged over all six sheets.

Description	$ per Move	# of Moves	Sub-total
Dump Trucks	$100	4	$400
Grader	$400	1	$400
Compactor	$400	1	$400
Excavator	$450	1	$450
Dozer D8)	$400	1	$400
Front end loader	$400	1	$400
Rock crusher	$5,000	1	$5,000
Dozer (D5)	$240	1	$240

Total Mobilization = $7,690 Mobilization sub-total = $1,282

Road No. H 1200, H line
Standard: Secondary Mainline (12' R.S.)
Stations: 56.49

SHEET TOTAL = $88,004

By: B Freeman

Date: 11/30/04

CENTRAL REGION - ROAD COST ESTIMATE

SALE NAME: First Time

CONTRACT NUMBER: N/A

I. CLEARING AND GRUBBING:

Flat Rate -	% Side Slope	MBF/ac	Disposal Factor	Production Factor	Cost/ Station	Width Factor	Total Stations	Sub Total
H 1230	20%	35	1.00	2.77	$40	0.80	0.00	$0
	30%	35	1.00	3.90	$40	1.00	59.66	$9,307
	40%	35	1.00	4.29	$40	0.80	0.00	$0
	50%	35	1.00	4.70	$40	0.80	0.00	$0

Clear and Grub TOTAL = $9,307

II. EXCAVATION:

Flat Rate -	% Side Slope	Exc. Type Fact.	Production Factor	Cost/ Station	Width Factor	Total Stations	Sub Total
H 1230	20%	1.00	2.00	$66	0.50	0.00	$0
	30%	1.00	2.50	$66	1.00	59.66	$9,844
	40%	1.00	4.56	$66	0.50	0.00	$0
	50%	1.00	6.85	$66	0.50	0.00	$0

*End Haul, Over Haul, Large Fills/Cuts

	Estimated Vol. (cy)	No. of Equip. Days	Cost/day	Sub Total
Concrete pipe replace @ 13+72	0	1.50	$1,850	$2,775
Puncheon Replacement @ 22+17		1.50	$1,850	$2,775
Concrete pipe replace @ 18+48	0	1.50	$1,850	$2,775

Excavation TOTAL = $18,169

III. BALLAST AND SURFACING :

Ballast source: H 1210 pit
Surface source: H 1210 pit
8"+ rock source : H 1210 pit

UNIT COSTS	Ballast	Surfacing	8"+
Drill & Shoot	$2.50	$2.50	$2.50
Dig and load	$0.50	$0.50	$0.50
Crushing	$2.50	$3.25	
Purchase			
Haul *	$3.42	$3.42	$3.42
Spread	$0.80	$0.80	$0.80
Compact	$0.45	$0.45	$0.45
Strip			
Reclamation			
TOTAL ($/cy)	$10.17	$10.92	$7.67

Description	cu.yds/sta	x stations	= cubic yards
Ballast (4"-)	41	59.66	2,424
Surfacing (3"-)	34	59.66	2,030
8"+	7	1.00	7

* Haul Formula: (R.T.Miles/MPH+Delay)($/hr / Cy/load)

R.T. Miles =	5.0
Ave. Speed =	15
Delay (Hrs.)=	0.2
Cost / Hour =	$77.00
CY / Load =	12

Ballast (4"-)	2424 Cu. yds @	$10.17 /cu. yd =	$24,652
Surfacing (3"-)	2030 Cu. yds @	$10.92 /cu. yd =	$22,170
8"+	7 Cu. yds @	$7.67 /cu. yd =	$54

Rock total = $46,876

IV. CULVERTS AND FLUMES:

Description	Qty.	Gauge	Diameter (in.)	No/Length (ft)	Installed Cost/ft	Sub-total
	1	na	18	200	$11.80	$2,360
Bands & Gaskets			6 - 18"@$9.90ea			$59

Culvert total = $2,419

V. STRUCTURES

Description	Type	Width	Length	Cost/ft.	Sub-total
					$0
					$0
					$0

Structure total = $0

Sub-TOTAL = $76,771

VI. GENERAL EXPENSES: Overhead & General Exp. Add 9% $6,909

VII. MOBILIZATION:

* Move in costs are averaged over all six sheets.

Description	$ per Move	# of Moves	Sub-total
Dump Trucks	100	4	$400
Grader	400	1	$400
Compactor	400	1	$400
Excavator	450	1	$450
Dozer D8)	400	1	$400
Front end loader	400	1	$400
Rock crusher	$5,000	1	$5,000
Dozer (D5)	$240	1	$240

Total Mobilization = $7,690 Mobilization sub-total = $1,282

Road No. H 1200, H line
Standard: Secondary Mainline (12' R.S.)
Stations: 59.66

SHEET TOTAL = $84,962

By: B Freeman

Date: 11/30/04

PC REGION - ROAD COST ESTIMATE

SALE NAME: First Time

CONTRACT NUMBER: N/A

I. CLEARING AND GRUBBING:

Flat Rate -	% Side Slope	MBF/ac	Disposal Factor	Production Factor	Cost/ Station	Width Factor	Total Stations	Sub Total
A 2060	30%	35	1.00	3.90	$40	1.00	19.68	$3,070
								$0
								$0
								$0
								$0

Clear and Grub TOTAL = $3,070

II. EXCAVATION:

Flat Rate -	% Side Slope	Exc. Type Fact.	Production Factor	Cost/ Station	Width Factor	Total Stations	Sub Total
A 2060	30%	1.00	2.50	$66	1.00	19.68	$3,247
						0.00	$0
						0.00	$0
						0.00	$0
						0.00	$0

*End Haul, Over Haul, Large Fills/Cuts	Estimated Vol. (cy)	No. of Equip. Days	Cost/day	Sub Total
End Haul/ Over Haul				$0
Large Fills/ Cuts				$0

Excavation TOTAL = $3,247

III. BALLAST AND SURFACING :

Ballast source: H 1210 pit
Surface source: H 1210 pit
Riprap source :

Description	cu.yds/sta x	stations =	cubic yards
Ballast (4"-)	60	19.68	1,171
Surfacing (3"-)	33	19.68	650
Riprap			

UNIT COSTS	Ballast	Surfacing	Riprap
Drill & Shoot	$2.50	$2.50	
Dig and load	$0.50	$1.00	
Crushing	$2.50	$3.25	
Purchase			
Haul *	$5.33	$5.33	$5.33
Spread	$0.80	$0.80	
Compact	$0.45	$0.45	
Strip			
Reclamation			
TOTAL ($/cy)	$12.08	$13.33	$5.33

* Haul Formula: (R.T.Miles/MPH+Delay)($/hr / Cy/load)

R.T. Miles = 12.0
Ave. Speed = 15
Delay (Hrs.)= 0.2
Cost / Hour = $64.00
CY / Load = 12

Ballast (4"-)	1171	Cu. yds @	$12.08	/cu. yd =	$14,145
Surfacing (3"-)	650	Cu. yds @	$13.33	/cu. yd =	$8,665
Riprap	0	Cu. yds @	$5.33	/cu. yd =	$0

Rock total = $22,810

IV. CULVERTS AND FLUMES:

Description	Qty.	Gauge	Diameter	No/Length	Installed Cost/ft	Sub-total
Bands & Gaskets						$0

Culvert total = $0

V. STRUCTURES

Description	Type	Width	Length	Cost/ft.	Sub-total
					$0
					$0
					$0

Structure total = $0

Sub-TOTAL = $29,127

VI. GENERAL EXPENSES: Overhead & General Exp. Add 9% $2,621

VII. MOBILIZATION:

* Move in costs are averaged over all six sheets.

Description	$ per Move	# of Moves	Sub-total
Dump Trucks	100	4	$400
Grader	400	1	$400
Compactor	400	1	$400
Excavator	450	1	$450
Dozer D8)	400	1	$400
Front end loader	400	1	$400
Rock crusher	$5,000	1	$5,000
Dozer (D5)	$240	1	$240

Total Mobilization = $7,690 Mobilization sub-total = $1,282

Road No. A 2060
Standard: Secondary Mainline (12' R.S.)
Stations: 19.68

SHEET TOTAL = $33,031

By: B Freeman

Date: 11/30/04

PC REGION - ROAD COST ESTIMATE

SALE NAME: First Time

CONTRACT NUMBER: N/A

I. CLEARING AND GRUBBING:

Flat Rate -	% Side Slope	MBF/ac	Disposal Factor	Production Factor	Cost/ Station	Width Factor	Total Stations	Sub Total
H 1210	40%	25	1.00	4.29	$40	1.00	21.45	$3,681
								$0
								$0
								$0
								$0

Clear and Grub TOTAL = $3,681

II. EXCAVATION:

Flat Rate -	% Side Slope	Exc. Type Fact.	Production Factor	Cost/ Station	Width Factor	Total Stations	Sub Total
H 1210	40%	1.00	4.56	$88	1.00	21.45	$8,607
						0.00	$0
						0.00	$0
						0.00	$0
						0.00	$0

*End Haul, Over Haul, Large Fills/Cuts

	Estimated Vol. (cy)	No. of Equip. Days	Cost/day	Sub Total
End Haul/ Over Haul				$0
Large Fills/ Cuts				$0

Excavation TOTAL = $8,607

III. BALLAST AND SURFACING :

Ballast source: H 1210 pit
Surface source: H 1210 pit
Riprap source :

Description	cu.yds/sta	x stations =	cubic yards
Ballast (4"-)	35	21.45	741
Surfacing (3"-)	31	21.45	674
Riprap			

UNIT COSTS	Ballast	Surfacing	Riprap
Drill & Shoot	$2.50	$2.50	
Dig and load	$0.50	$0.50	
Crushing	$2.50	$3.25	
Purchase			
Haul *	$1.28	$1.28	$1.28
Spread	$0.80	$0.80	
Compact	$0.45	$0.45	
Strip			
Reclamation			
TOTAL ($/cy)	$8.03	$8.78	$1.28

* Haul Formula: (R.T.Miles/MPH+Delay)($/hr / Cy/load)

R.T. Miles =	0.6					
Ave. Speed =	15	Ballast (4"-)	741	Cu. yds @	$8.03 /cu. yd =	$5,950
Delay (Hrs.)=	0.2	Surfacing (3"-)	674	Cu. yds @	$8.78 /cu. yd =	$5,917
Cost / Hour =	$64.00	Riprap	0	Cu. yds @	$1.28 /cu. yd =	$0
CY / Load =	12					

Rock total = $11,868

IV. CULVERTS AND FLUMES:

Description	Qty.	Gauge	Diameter	No/Length	Installed Cost/ft	Sub-total
Bands & Gaskets						$0

Culvert total = $0

V. STRUCTURES

Description	Type	Width	Length	Cost/ft.	Sub-total
					$0
					$0
					$0

Structure total = $0

Sub-TOTAL = $24,156

VI. GENERAL EXPENSES: Overhead & General Exp. Add 9% $2,174

VII. MOBILIZATION:

* Move in costs are averaged over all six sheets.

Description	$ per Move	# of Moves	Sub-total
Dump Trucks	100	4	$400
Grader	400	1	$400
Compactor	400	1	$400
Excavator	450	1	$450
Dozer D8)	400	1	$400
Front end loader	400	1	$400
Rock crusher	$5,000	1	$5,000
Dozer (D5)	$240	1	$240

Total Mobilization = $7,690 Mobilization sub-total = $1,282

Road No. H 1210
Standard: Secondary Mainline (12' R.S.)
Stations: 21.45

SHEET TOTAL = $27,611

By: B Freeman

Date: 11/30/04

PC REGION - ROAD COST ESTIMATE

.E NAME: First Time

)NTRACT NUMBER: N/A

I. CLEARING AND GRUBBING:

Flat Rate -	% Side Slope	MBF/ac	Disposal Factor	Production Factor	Cost/ Station	Width Factor	Total Stations	Sub Total
C line shoe fly	10%	25	1.00	2.56	$40	1.00	7.16	$733
								$0
								$0
								$0
								$0

Clear and Grub TO $733

II. EXCAVATION:

Flat Rate -	% Side Slope	Exc. Type Fact.	Production Factor	Cost/ Station	Width Factor	Total Stations	Sub Total
C line shoe fly		1.00	1.00	$88	1.00	7.16	$630
						0.00	$0
						0.00	$0
						0.00	$0
						0.00	$0

nd Haul, Over Haul, Large Fills/Cuts

	Estimated Vol. (cy)	No. of Equip. Days	Cost/day	Sub Total
End Haul/ Over Haul				$0
Large Fills/ Cuts				$0

Excavation TC $630

III. BALLAST AND SURFACING :

Ballast source: H 1210 pit
Surface source: H 1210 pit
8"+Rock source : H 1210 pit

Description	u.yds/sta	x stations =	cubic yard
Ballast (4"-)	54	7.16	387
Surfacing (3"-)	34	7.16	240
8"+	2	1.00	2

UNIT CO	Ballast	Surfacing	Riprap
Drill & Sh	$2.50	$2.50	$2.50
Dig and lc	$0.50	$0.50	$0.50
Crushing	$2.50	$3.25	
Purchase			
Haul *	$1.64	$1.64	$1.64
Spread	$0.80	$0.80	$0.80
Compact	$0.45	$0.45	$0.45
Strip			
Reclamation			
TOTAL ($	$8.39	$9.14	$5.89

* Haul Formula: (R.T.Miles/MPH+Delay)($/hr / Cy/load)

.T. Miles =	1.6
'e. Speed =	15
lay (Hrs.)=	0.2
st / Hour =	$64.00
Y / Load =	12

Ballast (4"-	387	Cu. yds @	$8.39	/cu. yd =	$3,247
Surfacing (	240	Cu. yds @	$9.14	/cu. yd =	$2,194
8"+	2	Cu. yds @	$5.89	/cu. yd =	$12

Rock total = $5,452

IV. CULVERTS AND FLUMES:

Description	Qty.	Gauge	Diameter	No/Length	Installed Cost/ft	Sub-total
	1	NA	18	50	$11.80	$590
Bands & Gaskets	2	NA	18		$9.90	$20

Culvert total = $610

V. STRUCTURES

Description Type	Width	Length	Cost/ft.	Sub-total
				$0
				$0
				$0

Structure total = $0

Sub-TOTAL = $7,425

VI. GENERAL EXPENSES: Overhead & General Exp. Add 9% $668

VII. MOBILIZATION

Description	$ per Move	# of Moves	Sub-total
Dump Trucks	100	4	$400
Grader	400	1	$400
Compactor	400	1	$400
Excavator	450	1	$450
Dozer D8)	400	1	$400
Front end loader	400	1	$400
Rock crusher	$5,000	1	$5,000
Dozer (D5)	$240	1	$240

* Move in costs are averaged over all six sheets.

Total Mobilization = $7,690 lobilization sub-total = $1,282

Road No. C line shoe fly
Standard: Secondary Mainline (12' R.S.)
Stations: 7.16

SHEET TOTAL = $9,375

By: B Freeman

Date: 11/30/04